

REMARKS

Claim 1 has been amended to incorporate therein the recitation of claim 7. Claim 7 has been canceled. Claims 1, 5-10, 12, 14-22, 24-28, 30 and 32 stand rejected. Review and reconsideration on the merits are requested.

Claims 1, 5-10, 12, 14-22, 24-28, 30 and 32 were provisionally rejected under the judicially created doctrine of obviousness-double patenting over claims 1-17 of copending Application No. 09/957,030. The basis for rejection is that the present application and copending Application No. 09/957,030 are said to claim common subject matter (i.e., oxygen supply apparatus with a sensor for detecting a state of breathing of a user), and that the Applicants could have presented the claims of the present application in the copending application.

Applicants traverse for the reason that there is no figure in copending Application No. 09/957,030, such as Fig. 2 of the present application, which shows a breath detection port provided separately from the oxygen outlet and connected to the inhaler for detecting the user's state of breathing as claimed in present independent claims 1 and 9. Rather, as shown in Fig. 1 of copending Application No. 09/957,030, pressure sensor 53 is directly connected to oxygen outlet 49.

Therefore, Applicants could not have presented the claims of the present application in the copending application, and withdrawal of the foregoing provisional obviousness-type double patenting rejection is respectfully requested.

Claims 1, 5-10, 12, 14-22, 24-28, 30 and 32 were rejected under the judicially created doctrine of obviousness-double patenting as being unpatentable over the claims of U.S. Patent 6,837,244.

Applicants traverse for the reason that U.S. Patent 6,837,244 does not claim a breath detection port provided separately from the oxygen outlet and connected to the inhaler for detecting the user's state of breathing as required by present independent claims 1 and 9. Rather, similar to copending Application No. 09/957,030, Fig. 1 of U.S. Patent 6,837,244 shows pressure sensor 55 directly connected to oxygen outlet 49.

Withdrawal of the foregoing rejection is respectfully requested.

Claims 1, 5-8, 25, 27 and 30 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,735,268 to Chua et al. The Examiner cited Chua et al. as disclosing the invention substantially as claimed, including a breath detection port provided separately from the oxygen outlet and connected to the inhaler 50 for detecting the user's state of breathing and a sensor 32 disposed on a flow passage 53 reaching the breath detection port.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the amendment to the claims and the following remarks.

Contrary to the Examiner's assertion, Chua et al. does not disclose or illustrate a bypass flow passage 50 for bypassing control member (electromagnetic valve) 47 as shown in Fig. 1 and as claimed in original claim 7. Chua et al. also does not disclose or illustrate flow-rate adjuster 52 provided in a bypass flow passage 50 for adjusting the flow rate of oxygen-enriched gas flowing through the bypass flow passage as required by present claim 1. Rather, as shown in

Fig. 1 of Chua et al., an electric signal via signal line 54 either closes or opens valve 1 to permit oxygen to flow into gas delivery tube 52 from oxygen supply 12. There is no bypass flow passage or flow-rate adjuster provided in the bypass flow passage as required by original claims 7 and 8.

In view of the above, and to clearly distinguish over the cited prior art, claim 1 has been amended to incorporate therein the recitation of claim 7, to recite that the oxygen enriching apparatus comprises a main passage extending to the oxygen outlet and adapted to supply the oxygen-enriched gas thereto, the main passage comprising a control member for adjusting the opening of the main passage, and a bypass flow passage for bypassing the control member. Claim 7 has been canceled. Claim 8 has been amended to depend from claim 1.

Withdrawal of the foregoing rejection is respectfully requested.

Claims 9, 10, 12, 14, 16, 24, 26, 28 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chua et al., in view of U.S. Patent No. 6,123,074 to Hete et al. The Examiner relied on Hete et al. as teaching means for providing oxygen-enriched gas at a flow rate greater than a continuous base flow rate during inhalation (corresponding to IPAP) and at a second flow rate less than the continuous base flow rate during exhalation (said to correspond to EPAP).

Applicants traverse, and respectfully request the Examiner to reconsider for the following reasons.

Hete et al. discloses supplying oxygen-enriched gas at a higher pressure, and therefore higher flow rate during inhalation, and at a lower pressure and therefore lower flow rate during

exhalation (column 9, lines 3-21). The apparatus of Hete et al. may also have a continuous base flow rate at which the oxygen enriching apparatus can supply oxygen-enriched gas continuously. However, the cited prior art does not disclose that oxygen-enriched gas is supplied at a flow rate greater than the continuous base flow rate during inhalation as required by claim 9.

In order to be able to supply oxygen-enriched gas at a flow rate greater than the continuous base flow rate, the apparatus must have reserve product tanks for accumulating oxygen-enriched gas during exhalation (when the flow rate is less than the continuous base of flow rate). These are shown, for example, as product tanks 33 and 37 in Fig. 1 of the present specification. Without such reserve product tanks, there is no accumulation, and hence an apparatus without reserve product tanks cannot supply gas at a rate greater than the continuous base flow rate.

In fact, no such reserve tanks are disclosed or shown in Hete et al. Thus, if Hete et al. does have something corresponding to a continuous base flow rate, it is the maximum opening of flow generator 14 as controlled by pressure controller 26 which accepts the IPAP/EPAP signal. In that case, the flow rate during inhalation is at most at the continuous base flow rate or lower, depending on the setting of the pressure controller 26 and flow generator 14. It can never be at a flow rate higher than the continuous base flow rate.

Chua et al. also does not disclose or illustrate reserve storage tanks for supplying oxygen-enriched gas during exhalation that would allow the apparatus to provide oxygen-enriched gas at a flow rate greater than the continuous base flow rate. As shown in Fig. 1 of Chua et al., the

patient is connected to oxygen supply 12 through valve V1 and there are no reserve storage tanks.

The merit of providing the apparatus with means for supplying oxygen-enriched gas at a flow rate higher than the continuous base flow rate is discussed at page 15 of the specification. That is, the oxygen enriching apparatus can be made small-sized, and while still being able to supply oxygen at a high flow rate when necessary (during inhalation), while still supplying oxygen-enriched gas at a flow rate lower than the continuous base flow rate during exhalation (so as to simulate ordinary breathing).

In summary, none of Chua et al. and Hete et al. disclose that oxygen-enriched gas is supplied at a flow rate greater than the continuous base flow rate during exhalation, and importantly do not disclose a means or apparatus for meeting this requirement of claim 9. Withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claim 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chua et al., in view of U.S. Patent No. 5,720,276 to Kobatake et al. Kobatake et al. was cited as teaching a tank provided downstream of the oxygen enriching section for accumulating oxygen-enriched gas supplied during exhalation.

Applicants respectfully traverse for the following reasons.

Kobatake et al., in Fig. 2, does show oxygen tank 12h downstream of nitrogen absorber 12f. The function of the oxygen tank is described at column 4, but there is no description of such tank for accumulating oxygen-enriched gas supplied during exhalation as required by present claim 15. Rather, Kobatake et al. merely discloses that upon operation of compressor 12a, shut-

off valve 12g is energized so that the output of the nitrogen absorber 12f communicates with the oxygen tank of 12h (column 4, lines 55-67). However, there is no description of accumulating oxygen-enriched gas supplied during exhalation.

For the above reasons, it is respectfully submitted that claim 15 is patentable over Chua et al. in view of Kobatake et al., and withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claims 17 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chua et al., in view of Kobatake et al., and further in view of U.S. Patent 6,237,594 to Davenport. The Examiner relied on Davenport as disclosing a plurality of tanks 46, 50, provided in series, for stably supplying the oxygen-enriched gas. The Examiner further cited to valve 62 as disclosing the check valve as claimed in claim 21.

Applicants reply as follows.

As shown in Fig. 2 of Davenport, bolus chambers 46 and 50 are said to correspond to the claimed plurality of tanks provided in series in the oxygen-enriched gas supply passage. They are arranged at the downstream side of the oxygen enriching section. Flow control means 62 is arranged between the chambers. However, control means 62 would seem to have a function somewhat different than preventing reverse flow. Rather, when control means 62 is closed, gas flow from bolus chamber 46 is shut off and the only flow delivered by apparatus 10 to supply valve 28 is that conveyed by passageway 48 to bolus chamber 50. As a result, during inhalation, recipient 12 receives a comparatively low-level bolus of respiratory gas from bolus chamber 50 at the onset of inhalation (column 9, lines 30-38).

For the above reasons, it is respectfully submitted that at least claim 21 defines subject matter neither taught nor suggested by the cited prior art.

Alternatively, Applicants rely on the response above with respect to the rejection of claim 1 over Chua et al. alone.

Withdrawal of the foregoing rejection is respectfully requested.

Claims 18 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chua et al., in view of Hete et al., further in view of Kobatake et al.

Applicants rely on the response above with respect to the rejection of claims 17 and 21 above. Claims 18 and 22 depend from claim 9, whereas claims 17 and 21 depend from claim 1. Withdrawal is respectfully requested.

Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chua et al., in view of Kobatake et al., and further in Davenport. The Examiner considered that it would have been obvious to set the tank capacity (of Davenport) to a volume of at least 500 ml in order to deliver gas over a wide range of flow rates.

The Examiner cites to apparatus 10 of Chua et al., but Applicants believe that the Examiner is referring to apparatus 10 of Davenport. Applicants rely on the response above with respect to the rejection over Chua et al. in view of Kobatake et al. Withdrawal is respectfully requested.

Claim 20 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chua et al., in view of Hete et al., further in view of Kobatake et al. and Davenport.

Claim 20 is similar to claim 19 in that it specifies that each of the two tanks connected in series has a capacity of at least 500 ml, but depends from independent claim 9.

Applicants rely on the response above with respect to the rejection of claim 19.

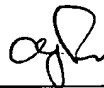
Withdrawal is respectfully requested.

Withdrawal of all rejections and allowance of claims 1, 5, 6, 8-10, 12, 14-22, 24-28, 30 and 32 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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